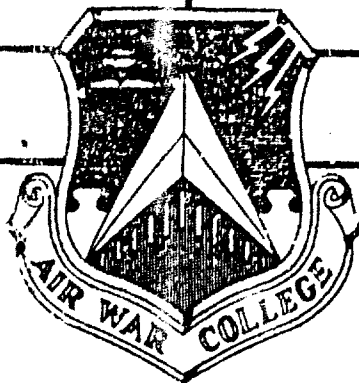


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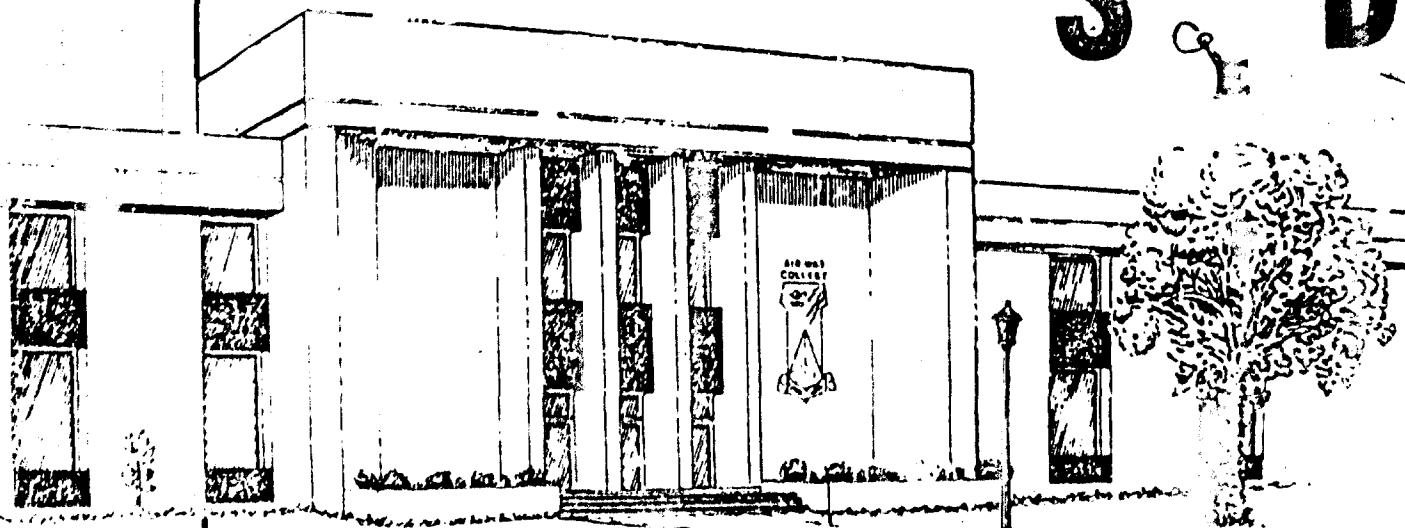
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AN ASSESSMENT OF BRAZIL'S
ECONOMIC AND ENERGY PROBLEMS

LT COL KEITH D. HAWKINS

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UNITED STATES AIR FORCE
MAXWELL AIR FORCE BASE, ALABAMA

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AN ASSESSMENT OF BRAZIL'S ECONOMIC
AND ENERGY PROBLEMS

by

Keith D. Hawkins
Lieutenant Colonel, USAF

A RESEARCH REPORT SUBMITTED TO THE FACULTY
IN
FULFILLMENT OF THE RESEARCH
REQUIREMENT

Research Advisor: Lieutenant Colonel George M. Lauderbuagh

MAXWELL AIR FORCE BASE, ALABAMA

April 1988

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AIR WAR COLLEGE RESEARCH REPORT ABSTRACT

TITLE: An Assessment of Brazil's Economic and Energy Problems

AUTHOR: Keith D. Hawkins, Lieutenant Colonel, USAF

Brazil, a large Third World country with significant potential, was well on its way toward entering developed nation status when the Organization of Petroleum Exporting Countries (OPEC) raised the price of oil in 1973. This price rise hit Brazil particularly hard because imports supplied approximately 80 percent of her energy needs. Brazil's problem then became one of how to counter the economically devastating impact of the costly energy imports. If adequate alternatives to imported oil could be developed, it was thought Brazil's economic problems would apparently be over. Brazil worked hard on the problem and made dramatic progress over a 15 year period. However, during this 15 year period Brazil amassed the largest foreign debt of any Third World country, most of which was incurred paying for imported energy. This huge debt replaced the original energy dependence problem, and Brazil is no better off economically than she was when the energy crisis effectively stopped economic growth. Brazil's economic problems carry certain implications for United States policy planners, and the author makes recommendations regarding these implications.

BIOGRAPHICAL SKETCH

Lieutenant Colonel Keith D. Hawkins (M.A., George Peabody at Vanderbilt University) became interested in Brazil and the vast Amazon region while studying as an undergraduate forestry student in 1967. He has read extensively on the region since that time. Colonel Hawkins' military experience includes a tour of duty in the United Kingdom, one on the island of Guam, and numerous others in the United States. His latest duty was commanding an aircraft maintenance squadron at Kirtland AFB, New Mexico. Colonel Hawkins is a graduate of the Air War College, class of 1988.

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CHAPTER 1

INTRODUCTION

Brazil, a large Third World Country with significant potential, was well on its way toward entering developed nation status when in 1973 the Organization of Petroleum Exporting Countries (OPEC) raised the worldwide price of oil. This price rise hit Brazil particularly hard because oil imports supplied approximately 80 percent of her energy needs. (8:202; 21:69) Brazil's problem then became one of how to counter the economically devastating impact of the costly energy imports. If adequate alternatives to imported oil could be developed, Brazil's economic problems would apparently be over, given her potential.

Brazil's economic potential is readily apparent when one takes a close look at the three key components of the country as an economic machine; her people, natural resources, and energy resources.

The people of Brazil do not fit the stereotyped mold of Latin Americans in general. Brazilians are infectiously optimistic and hard working. Racially diverse, they have achieved an amazingly high degree of national unity and identity. Brazilians live in a land well-endowed with natural resources.

Brazil has long been recognized for her wealth of both renewable and nonrenewable natural resources. The vast

Amazon region alone is enough to inspire awe as its dimensions are realized. Under the ground in various regions of Brazil lie gold, iron ore, manganese, and a whole host of other mineral resources in a seemingly endless supply. Until the last decade, the one area in which Brazil was found most lacking was the area of convertible energy sources. (8:202) .

Until very recently Brazil imported the majority of her energy supplies. Brazil has worked hard developing alternatives to the costly imports, and her import dependence has been dramatically reduced. Among the most successful of these efforts include an aggressive program to utilize the renewable biomass resources of the country to produce alcohol, which in turn is used as automotive fuel. The renewable energy source of hydro power has also been exploited, resulting in the construction of the world's largest dam. Another success has been the discovery of significant sources of petroleum both inside the country and just off the coast. Finally, Brazil has stepped up barter and trading activities in world markets, earning credit which she uses to purchase what remaining energy resources she requires. However, these impressive efforts have not solved Brazil's economic problems.

In the process of developing alternatives to the tremendous import burden, Brazil built up a huge foreign debt that is now serving as an economic millstone around her

neck. The debt, largest of any Third World nation, amounts to well over \$105 billion, and servicing this debt takes well over half of Brazil's export earnings. Because of the debt, international or foreign investors are reluctant to pour more money into the country for development purposes. Without additional capital and with a declining economy, the social injustices felt by a significant percentage of the Brazilian people make the political scene look like a powderkeg.

As holders of a significant portion of Brazil's debt and as potential competitors in world trade, the United States has a number of potentially conflicting interests in the outcome of Brazil's continuing economic problems. The United States must be extremely careful to insure that the expression of short term interests do not interfere with the ability to protect long term interests in relations with Brazil. The author offers some recommendations in Chapter V.

CHAPTER II

BACKGROUND ON BRAZIL AS AN ECONOMIC MACHINE

To understand the importance that energy plays in Brazil's economy, it is necessary to spend some time reviewing selected background material. This chapter will take a look at Brazil as an economic entity by breaking it into components of: people, natural resources, and energy. This background will not be an exhaustive review but instead will be a series of snapshots. Pictures of the bright side as well as the not so bright side will be viewed. Before the latest failure by the Brazilians to effect a cure to their economic ills, almost everything written was positive and optimistic. Only after the economy returned to hyper-inflation with runaway prices and wages, were the optimistic voices muted and more realistic calculating assessments made.

People

Optimism, not pessimism seems to be a very dominate characteristic of the 137 million plus Brazilian people. As a people, Brazilians generally appear very dynamic, willing to work; they dream, and seek their dreams. (6:76) In Sao Paulo, the polluted, 15 million-people-strong, industrial heart of Brazil, they talk with pride about the work ethic that brings people into offices and shops for 10-hour

workdays--days that start and end with long commutes.

(7:21; 6:75)

Brazilians also take pride in espousing the racial harmony and cooperation that the society as a whole seems to have achieved. The people are amazingly racially diverse with significant intermingling of the races and socially acceptable interracial marriages. Blacks who were originally brought to the country as slaves make up roughly one-third of the population. The remaining two-thirds vary from the original Portuguese settlers to later immigrants from Japan. Incidentally, the Japanese population makes up the largest group of ethnic Japanese in the world living away from Japan proper. (23:54)

The famous carnivals in Rio de Janeiro and pictures one sees of people of all races mingling on crowded beaches would lead one to believe that everything in the society is well and good. What the pictures and images do not often portray is the painful contrast between the "haves" and the "have-nots" of Brazil. (11:21)

One Brazilian sociologist called Brazil a developed country of 50 million, living inside an undeveloped country of 90 million. (11:19) In the undeveloped country the average monthly income is less than \$60 per month, and two-thirds of the people consume food containing less than 2400 calories per day, the lowest considered acceptable by the health authorities in the Brazilian government. (6:73)

In the developed country people retreat to homes and apartments behind high walls and barbed wire to avoid losing their belongings to the "have-nots." (11:21) Serious criminal activity in major cities like Rio de Janeiro is rampant. In that city alone over 100,000 crimes remain unsolved, and three out of ten citizens reported that they had been mugged last year. (11:25) Police corruption is alleged, and the court system is so bottled up with unworkable bureaucracy that it sometimes takes up to six years for a case to be heard. Prisons are extremely overcrowded--so much so that in 1985 a bizarre case developed revealing the sacrificial murder by inmates of over 14 of their fellow prisoners. The victims, chosen by lot, could chose between hanging themselves or being brutally beat to death. The idea was to bring attention to the inhumane treatment and overcrowding suffered by all. (11:25)

In the countryside conditions for the landless poor are rarely better than that experienced by their brethren in the slums of the cities. In actuality the notoriously poor conditions in the country have lead to migration to the cities. However, many of these landless poor are attracted to the apparently fertile Amazon basin that, in fact, has a very fragile ecology and easily depleted soil. The need to keep moving to new soil has led to slash and burn farming that ecologists fear will create long term damage to the

world's ecology. When the size of this vast area of the Amazon is looked at, landless poor burning vegetation on the fringes seem insignificant until one realizes that these people working on the fringes are destroying over 10,000 square miles of forest per year. (11:28)

Natural Resources

The green bounty of the Amazon basin that stretches over 1400 miles east to west and 1000 miles north to south is not the only blessing of natural resources the Brazilians enjoy. Within their country, Brazilians have access to a seemingly unlimited quantity of iron ore, bauxite, manganese, tungsten, titanium, platinum, thorium, and many other strategically important metals and materials. Of particular note is thorium. Thorium is the fuel which will be needed for use in second generation nuclear breeder reactors, and Brazil has the world's only known significant deposits of this critical mineral. (5:43)

Extracting Brazil's mineral wealth is done on a grand scale. At one large deposit in the Amazon basin, a whole mining center named Carajas has sprung up. This \$6 billion complex of iron ore mine, railway handling yards, and port on the Amazon river, is the largest ore extraction operation in the world. With a rate of extraction approaching 35 thousand tons a year, it is estimated that the deposit being worked will not be depleted until after the year 2500. (7:19)

Gold is also enjoying a revival of discovery. Two mines recently opened hold particular promise. One of these, Carajas in Para, is reported to have the richest vein of gold yet discovered anywhere in the world. (5:43) However, unlike the early years of Brazilian mineral exploitation, gold is not in danger of creating a single commodity or resource situation that has been the downfall of the Brazilian economy a number of times in modern history.

Brazil's abundant mineral resources have not gone unnoticed by other countries. The Soviet Union, for example, plans to invest over \$60 million in a manganese steel alloy production operation with the intent of earning the right to purchase the majority of the plant's production. (19:--) As turmoil and strife in South Africa, another major producer of strategic metals, continues to build over that country's racial policies, it would seem logical to assume that Brazil's supplies and production capacity will be courted by a number of countries that lack these mineral resources.

Another component in the picture of Brazilian natural resources is the sheer size of the land area she occupies. Larger than the continental United States, her lands vary from the dense tropical jungles of the Amazon to the dry almost parched areas on her northeast coast. However, size is somewhat deceiving when potential is

discussed because not all of Brazil is fertile or productive. As mentioned earlier in this paper, the Amazon soil is very fragile and in large part unsuitable for agricultural production.

Other regions of Brazil have similar problems. The huge Campo Cerrado region covering 500 million acres, or an area equal to 12 of the midwestern states in the United States, has sterile soil--nothing other than the grass has been successfully grown there in significant quantity. (23:54; 25:1450) However, the large area of productive land that remains is more than adequate to make Brazil a net exporter, second only to the United States in value, of agriculture products. (23:58) For example, Brazil is second only to the United States in soybean production and third following the United States and China in corn (maize) production. (7:4) Additionally, one-half of the orange juice consumed in the United States comes from Brazil. This is a relatively late development as Brazilian producers moved quickly to fill the void in markets when disastrous frosts decimated Florida orange groves. (6:76) As a final example, export earnings in 1981 for the soybean sales equalled \$3.2 billion. (5:43) In comparison, coffee sales, at one time about the only thing being exported in significant quantities, amounted to only slightly more than \$3.5 billion. (6:76)

As with her mineral resources, Brazil has done a terrific job of diversifying her agriculture production for export. But the picture is not all rosey. Of the 38 million people in Brazil who live outside her cities, 10 million are living in abject poverty that is comparable to that suffered by a large number of people in Haiti. (6:77) Brazil's peasants want land of their own; and in spite of a number of attempts to establish a policy to give them land, nothing has really changed. (7:17) The fertile and easily worked land is owned by large land owners, some of whom have inherited the property from ancestors that had the land deeded to them by the Portuguese crown. (6:77)

Surprisingly, the military leadership was the latest stumbling block in President Sarney's latest effort to break up some of the nonproductive farms claimed by absentee landlords. (12:41) Sarney's plan called for disbursement of plots ranging in size from 25 to 50 acres--large enough to provide subsistence in most cases but not large enough to become commercially viable. The World Bank has been responsive to requests for loans to improve the chances of success for small land owners including loans to finance irrigation projects and road construction. (6:77)

Water for irrigation is another natural resource blessing that is overlooked largely due to its abundance. About the only area in the country that is lacking in water is the dry northeast. In other areas rain is abundant and

typically comes with enough regularity to insure success in agriculture production. (25:1450) Water and the numerous rivers provide another very valuable renewable natural resource that is being exploited to great effect by the Brazilians--hydro power.

Energy

Hydro power or hydroelectric energy produced by the numerous generating facilities throughout the country is the most positive part of Brazil's energy situation. The remaining classical sources of energy, nonrenewable energy, do not offer nearly so bright a picture. In fact, the lack of nonrenewable energy sources is considered by many to be the "Achilles heel" of Brazil. (8:202) But the bright side, the hydroelectric production and its potential need to be discussed first.

Brazil currently has a peak hydroelectric production capability of 106,500 megawatts of electricity, and hydro power supplies 30 percent of her total energy needs. (7:19) This capability comes from a number of projects in the country constructed largely over the last 15 years. One such project, a joint venture with Paraguay, produced the world's largest dam, Itaipu. Itaipu is the pride of many Brazilians and rightly so. It currently supplies 10 percent of the country's electricity needs; and when all its 12,500 megawatts of capability is exploited, it will produce over 30 percent of the surrounding areas' electricity. (7:19)

Other projects are in various stages of completion, and by the turn of the century it is expected that most of the easily worked hydro potential will have been exploited. Increasing consumption is a concern. (4:87)

Growth is difficult to measure and could leave the country short of generating capacity. Consumption of petroleum products, for example, increased over 200 percent during the period from 1970 to 1980. During that same period, consumption in the United States increased only 16 percent. (4:64) As Brazil continues to develop and her people improve their lifestyles resulting in greater consumption of electricity, hydro power will not be enough. (21:135) The seemingly logical choice for additional generating capacity is nuclear power.

Early in the 1970's, Brazil's stated policy was to become self-sufficient in nuclear technology to enable her to exploit "full cycle" the uranium supplies she possessed. (1:343) Having just suffered the highly destructive effects of short supplies and high costs for imported oil, Brazil was feeling like a hostage to energy exporting countries. The original intent was to avoid this energy hostage situation again by not signing any agreement that would in the long term prevent Brazil from enriching uranium and using her own domestic supplies of this valuable resource. Brazil's concern was twofold. The first concern was simply supply, and the second concern is the cost of imported

nuclear fuel. As with petroleum, Brazil envisioned that an economically or militarily hostile foe could disrupt her economy by withholding nuclear fuel or making it disastrously expensive. (21:135-138)

After working a number of years with the Westinghouse Corporation to build her first nuclear powerplant and develop national nuclear capabilities, her greatest fears were realized when President Jimmy Carter's policy on nuclear nonproliferation and concern for human rights created problems in the Brazilian nuclear program. (2:111; 4:66) At the time, Brazil's military leaders had an admittedly poor record with regards to human rights' violations and had already developed what was obviously viewed by Mr. Carter as a cavalier attitude toward nuclear proliferation. In defense of President Carter, it does appear that Brazil served as a conduit for nuclear technology to Iraq and additionally sold that country uranium. (8:191; 26:45-47) President Carter effectively slowed development of Brazil's nuclear capability for a period of time but did not stop it. Since that time, Brazil's efforts in nuclear development have stirred passions both for and against development in the domestic and international arenas.

The United States is concerned about the proliferation of nuclear weapons, and Brazil is concerned that the United States is attempting to limit what she views

as her legitimate right to develop nuclear power for peaceful purposes. Her peaceful intent is always loudly proclaimed, and she backs up her claim by bringing attention to her signing of the Tlatelolco Treaty, a treaty banning all nuclear weapons from Latin America. (21:147) The treaty does leave her an "out" that, in effect, says that she can build a nuclear weapon if threatened by a nonsignatory neighbor. Argentina reportedly has the capability to build a nuclear device and is not a signer of the treaty. (18:--) Recently, Brazilian President Sarney announced that Brazil has achieved the capability to enrich uranium--the first step in weapons production. (18:--) Meanwhile, the plan to construct eight powerplants is way off track; and it appears that it will stay off track until Brazil can solve her economic problems and attract foreign investments to finance construction of the nuclear facilities. (5:42)

Unlike the renewable energy bright story of hydro electric power, Brazil had done a relatively poor job, prior to the 1970's, of locating and developing domestic supplies of oil. This poor performance created long term problems ranging from a staggering national debt to lack of confidence by international investors in her short term potential solvency.

Previous to the 1973-74 Organization of Petroleum Countries (OPEC) cartel embargo and resulting pushup of

international oil prices, Brazil was on an economic development rocket. Viewed by many as an "economic miracle," she was being blessed with outside investors that wanted to reap the benefits of the miracle. (5:42; 11:26) But the oil crisis glaringly changed all that. Previous to the 1973-74 crisis, Brazil was spending \$242 millions on imports of oil amounting to 8.5 percent of her net import bills. (8:185) After the increase in price this amount skyrocketed and peaked at \$11 billion in 1982, 50 percent of her total imports bill. (4:64) The situation became so grim that it drove the Brazilian government to borrow in the international money market to pay for the oil. (7:9)

With the money earned from sales of oil, OPEC producers found themselves with an oversupply of so-called petrodollars, seeking a place to store these funds. International banks ended up with these funds and loaned them to developing countries like Brazil, often at stiff interest rates and often with little or no collateral as one would normally expect. This cycle soon degraded into Brazil being forced to borrow more money just to pay interest. (4:64) The end result is Brazil is now burdened with a staggering debt of over \$105 billion that creates an interest burden of over \$10.5 billion per year. (6:83) This interest burden almost equals the positive balance of trade that Brazil has been able to achieve through her near dogmatic pursuit of a growth approach to economic

development. (3:22) In short, this OPEC double blow of high oil prices and high cost of borrowed money caught Brazil by surprise, driving her to desperate, sometimes drastic, measures to turn things around.

CHAPTER III

THE SEARCH FOR THE SOLUTION

Brazil was hit extremely hard by the OPEC oil embargo and resulting price hike. In 1973 imports made up 40 percent of her total petroleum consumption, and she realized too late the vulnerability of her situation. (21:133) Something had to be done quickly or she would be in a truly hopeless situation. A number of ideas seemed to hold some promise and these were explored quickly. The eventual policy Brazil developed was three pronged. This three prong approach included developing alternatives to petroleum, dramatically increasing the search and exploration for domestic sources of fossil fuels, and very aggressively pursuing opportunities for trade and barter with countries that owned the oil that was now so expensive. This chapter will examine each of these approaches in some detail with emphasis on alcohol as an alternative to petroleum.

Alcohol

Alcohol as fuel seems the logical choice that Brazil would take for movement out of her energy dependent predicament. First and foremost, its primary building block is biomass, i.e. grain, sugar or wood. Relatively speaking, Brazil has an abundance of biomass; and at the time, 1973, she had an overabundance of sugar. Secondly, the harvest

and movement of the biomass could be accomplished with relatively unsophisticated machinery and a plentiful supply of manpower. Finally, the production facilities or distilleries necessary to produce the alcohol are relatively simple to construct.

As far back as the 1920's, Brazilian sugar cane mills were producing alcohol in adjacent distilleries as a by-product and using it to supplement their fuel needs as an additive to gasoline. The distilling process is a simple one that has not changed in over 50 years. (24:26)

In World War II, when oil was scarce due to massive consumption by fighting forces worldwide, the mixing of alcohol was even more commonplace. During the war, Brazilian cane growers produced over 150 million gallons of alcohol for this purpose. (24:22)

Coinciding with the increase in oil prices in 1973 was a worldwide drop in sugar prices from \$1000 per ton to \$300 per ton. This left the sugar producers in a difficult situation and the country with an even worse balance of trade situation as sugar was an export commodity. (24:15) Naturally the sugar producers saw the opportunity for utilization of their now surplus and costly crops and encouraged adoption of a national program to turn their sugar into alcohol. The idea caught on, and soon the government was behind the sugar cane producers.

To work the alcohol alternative fuels idea the ruling military juntas established a National Alcohol Program. Petrobras, the national oil company, was put in charge and given a budget of \$1.2 billion to get the program going. Production was to be primarily a private investment or commercial operation with the government administering requirements and guaranteeing the purchase of all the alcohol produced. (24:12-13) However, to encourage production and consumption the government fixed the price of the alcohol at 30 percent below the price of gasoline. (24:14)

Before large scale production could have a significant effect in reducing imports of oil, a number of problems had to be worked out to make alcohol an attractive alternative. Initially the goal was to have all automotive fuel in the country made up of a mixture of gasoline and alcohol called gasohol. Very few problems were encountered with the 80 percent gasoline, 20 percent alcohol mixture. However, the long term solution was believed to be automobiles that could run on 100 percent alcohol. A test program was conducted with approximately 1,000 Volkswagen service vehicles of a national firm. Results were positive but indicated modifications to the vehicle would be necessary to gain the most from the alcohol and to reduce the risk of later problems with the vehicle. (24:15)

The major automobile manufacturers were brought into the planning and agreed to produce vehicles with the modifications. The modifications include but are not necessarily limited to: installing a small gasoline holding tank to store cold weather starting fuel; constructing fuel systems out of material resistant to alcohol induced corrosion; and installing engines with higher fuel air compression ratios. (24:55-56)

The higher compression engines were necessary because alcohol burns 40 percent less efficient than gasoline. Also, the higher compression narrows the gap by improving combustion conditions for the alcohol. (24:16)

Even with these modifications, the efficiency does not measure up to gasoline standards; and the government felt it necessary to institute a series of incentives to make ownership of these vehicles desirable. These incentives included extending the normal period allowed for new car financing from 12 months to 36 months and allowing special new car tax breaks. With the price of alcohol already established at 30 percent below that of gasoline, the difference in consumption caused by the inefficiencies of alcohol was accounted for. One final incentive bears note. Petrobras was given permission to open special alcohol service stations on the weekends. Normally stations are closed on the weekends in Brazil, and this particular

incentive gives the owners of alcohol burning vehicles greater flexibility. (24:14)

It took some time for the alcohol program to gain momentum. As mentioned previously, the initial goal of the program was to have all vehicles running on a 20 percent alcohol fuel mix. This goal deadline was 1980. The second stage of the program was to have 2 million vehicles on the road capable of running on 100 percent alcohol by 1985. (24:31) These goals were achieved and research initiated to find better ways to produce the alcohol.

Of particular interest in the research conducted are the efforts to produce methanol or alcohol from wood. It would seem only natural with the huge Amazon forest and other large forested areas in Brazil that wood would be the biomass of choice for the production of alcohol. However, there are a number of serious problems with methanol that bear note. First, methanol is considerably more expensive to produce than ethanol. Secondly, the caloric content of methanol is roughly only 75 percent of ethanol. Third, as a final example, methanol gives off noxious emissions including formaldehyde when burned as an automotive fuel. (24:36)

Other sources of biomass including cassava were studied with mixed success. (24:27) Considering this and the problems with methanol, it is easy to see why sugar cane remains the primary source of biomass. However, the

significant increases in production of sugar cane and in turn the distillation process caused a few problems.

Most noteworthy of these include, the conversion of land from foodstuff production to sugar cane production, and the problem of what to do with the slop or stillage left over from the distilling process. Simple government regulation of what lands could and could not be converted to sugar cane production, principally in Sao Paulo state, solved the first problem. The stillage problem was more difficult. Simply dumping it into nearby streams or rivers was not the solution because it killed the fish. Running it through evaporators was tried but found to be somewhat counter-productive in energy use. Probably the best partial solution found was to put the stillage back on the land. Interestingly, it was discovered that sugar cane stillage returned to the land where it was grown improved the soil. However, if it was put on land different than where it was grown it tended to poison the soil. (24:17)

Research on the use of her bountiful supplies of biomass was not the only thing Brazil did to solve her energy deficit problem. Looking for oil was another.

Exploration

Prior to the OPEC induced, international energy crisis, Petrobras, Brazil's national oil company, was not overly active in the search and development of domestic sources of petroleum. The reasons for this are numerous,

but the primary one was that the need did not exist--the incentive was not there. The situation, as mentioned previously, was that Brazil was in an economic boom even though she was importing over 80 percent of her petroleum needs. Another reason for Petrobras' foot-dragging was because it was generally believed that significant deposits of oil did not exist in and around Brazil. However, spurred by the massive burden of the cost of imported oil and the suddenly improved economic incentives to look, Petrobras went on a concentrated search. Ten years of intensive effort paid off. Petrobras has managed to increase production to more than 600,000 barrels a day, compared to only 174,000 barrels a day in 1979. The 600,000 barrels a day equates to about 60 percent of Brazil's domestic consumption. (21:15) Additionally, a recent discovery of a large field offshore from Rio de Janeiro looks like it might allow production to double if oil prices allow development of the field. (9:--) In the Amazon basin where Petrobras has been looking for over 30 years, they are finally "very optimistic" about a big find. One author suggests that a look at a sedimentary basin chart would indicate that there are plenty of other areas to explore. (7:19)

Petrobras is also buying less expensive natural gas from Bolivia, constructing a 1.940km pipeline in the process. The pipeline has a capacity of 400 million cubic feet per day and runs directly to Sao Paulo, the world's

third largest metropolitan area or city. (5:43) This effort to trade with a neighbor is just one example of the ongoing efforts on the part of Brazilian business and government leaders to expand and diversify the economy through trade and barter.

Barter and Trade

The principle endeavor and apparent overriding policy that Brazil has adopted in her fight out of the current economic mess, has been to expand exports as rapidly as possible. This emphasis on growth has brought Brazil from third world nation status into "emerging nation" status. (5:18) A number of statistics concerning her position vis-a-vis other trading nations illustrate the achievements wrought by her aggressiveness. It's important to quickly run down a list of the more glaring figures to illustrate this point. Quoting from various sources, some of these impressive figures include:

a. . . . With a GDP of around \$280 billion, Brazil is the eighth largest economy in the West. Its GDP is just over half that of Britain, but about \$50 billion more than Spain, its nearest rival, and about \$100 billion more than Australia, the runner-up in the southern hemisphere. (7:3)

b. . . . Brazil's GNP is nearly double that of its nearest Latin American rival, Mexico, and quadruple that of Argentina, the third-largest Latin American economy. If Brazil continued to grow at its historical rate of approximately 7 percent a year, it would surpass both Italy and Great Britain in economic size by 1995. . . . (8:178-179)

In her quest for growth, Brazil will trade or sell to anyone who is willing to do business. Much to the consternation of the United States, Brazil has included in her trading partnerships the Soviet Union and the Eastern Block countries. In 1976, for example, the Soviet Union became Brazil's seventh best trading partner. (8:193) Brazil sells the Soviets iron ore, soybeans and soy products, and a host of other manufactured goods. In November 1987, Soviet Foreign Minister, Eduard Shevardnadze, on a state visit to Brazil signed new accords that are to expand trade between the two countries. The Soviets, like most other trading partners with Brazil, fair poorly when balance of trade is measured. Unfortunately for the Soviets, about the only thing Brazil needs in return trade is petroleum. One symptom of the imbalance in needs is an almost humorous, creative scheme that would involve Brazil setting up an apple processing plant just south of Moscow. With earnings from the apple processing plant's exports, the Soviets would buy Brazilian orange juice. However, this resulting sale of orange juice is a mere drop in the bucket for Brazil as is the \$130 million annual trade between the two countries. (19:--)

Trade with the Eastern Block countries is somewhat more extensive. Poland for example, is a purchaser of leather products and other consumer goods, selling Brazil coke for her steel mills in return. Poland too buys more

from Brazil than she sells. With a current indebtedness to Brazil of over \$1 billion, Poland tried a very creative offer of giving up her rights to Antarctic lands in exchange for cancellation of the debt. Brazil refused the offer.

(4:65)

Brazil also has a definite tilt in trade matters toward the Arab countries in general. Although some say that this is due to a sizable population of expatriates from the Arab speaking countries, others say that it is due to Brazil's reliance on imported oil. (2:115; 8:191) Even before exploring extensively in Brazil, Petrobras was looking for oil in Iraq. This was clearly driven by economic needs. Relations with Iraq have been longstanding. Iraq agreed to purchase military equipment in an involved barter deal that found Brazil getting badly needed oil but also agreeing to give up rights Petrobras had apparently earned finding oil in Iraq. (8:191) Iraq may have also hoped that some sort of barter could be arranged for Brazil to supply uranium for Iraq's planned nuclear power plant. The plant was well along in construction when it was destroyed by Israel in a June, 1981 surprise attack. Speculating further, Iraq may have hoped that Brazil would be willing to trade enriched, weapons grade uranium for oil in later years, after she gained the technical expertise. (26:65) Iraq had been largely unsuccessful in acquiring unmonitored sources of enriched uranium from France, the

sponsor of Iraq's attempts to develop a nuclear program.

(26:79)

Brazil also traded extensively with Libya. That is until Libya's Colonel Muammar Qaddafi apparently felt comfortable enough in his country's trade relations with Brazil to attempt a gun-running mission using Brazilian airfields as a refueling stop. The incident occurred in April 1983 when Qaddafi wanted to get four planeloads of supplies to the Sandinista regime in Nicaragua. Qaddafi told the Brazilian government that the planes contained medical supplies. Certain elements of the Brazilian government wanted to take the Libyan leader at his word and others (tipped off by United States intelligence) objected. The argument centered around the good trade relations that Brazil had built with Libya and the risk taken to that trade. In the end, the aircraft were inspected under protest from the Libyans and found to be carrying military equipment. The Brazilian government directed the planes to return to Africa. (4:67)

This episode is really out of character for Brazil considering her policy of nonintervention with the affairs of others and her policy of selling arms to any country that wishes to purchase them. Brazil's no-questions-asked policy sets well with Third World countries who feel that they do not have to justify their own policies or give away national prerogatives to someone such as the United States or the

Soviet Union whom they believe are typically looking for political leverage. The policy has worked well for Brazil from an economic standpoint. She is now number one among Third World countries in arms production and sales. (5:20, 43) Her military sales totaled \$3 billion in 1986. (7:20) In early 1988 she closed a deal with Libya totaling over \$2 billion.

The political willingness is not the only reason she has been successful in military sales. In military circles the equipment she sells enjoys a fine reputation for quality and reliability. With emphasis on ruggedness and ease of maintenance, the equipment is especially appreciated by Third World customers that lack the logistics infrastructure necessary to support more sophisticated yet typically more fragile equipment. (5:18) The stable of military equipment Brazil can offer is quite diverse as well. It covers the whole spectrum of warfare hardware from aircraft, to tanks, to submarines, and most anything in between.

As can be easily seen with just a brief look, Brazil has done a tremendous job of expanding barter and trade to cover a wide range of goods and materials. Her position in world markets, especially in weapons trade, while not guaranteed, is quite firm. Why then is she not yet out of trouble economically? It would seem that with an apparently viable alternative to costly imports of petroleum, plus an aggressive domestic petroleum exploration and production

program, and finally a rapidly expanding world trade program that she would be well on the road to recovery. However, this is not the case, and the next chapter will attempt to explain why.

CHAPTER IV

ADEQUATE ENERGY SUPPLIES ARE NOT THE ANSWER

Unfortunately for Brazil, the aggressive, concerted and largely successful attempts made to solve her energy supply problem did not solve the long term economic problems already created. A number of explanations have been offered to explain why this is so, and this chapter will examine some of these explanations.

The first question that begs discussion is why hasn't the alcohol fuels program been more successful? Before answering this the successes of the program bear reiteration. First, the alcohol program has been a tremendous help in reducing imports. It has been estimated that the program has saved Brazil over \$9 billion in import expenses. Additionally, the program created over 1.7 million jobs. (10:--) The alcohol program has also brought Brazil time and growth opportunity that might otherwise have slipped away.

The failures, however, are that due to unforeseen changes in the world petroleum markets, Brazil is stuck with a very expensive system that produces fuel at better than double the cost of gasoline. (9:--) This unforeseen change was the dramatic drop in the price of crude oil on world markets. Back in 1979 it was costing Brazil somewhere between \$35 and \$40 a barrel to produce alcohol. (24:34)

Current production cost data could not be found, but it is probably higher than it was in 1979. Compare even the 1979 cost with today's costs of crude oil, well under \$20 a barrel, and the problem becomes clear. In effect, the government is forced to subsidize alcohol production while passing up the benefits of lower priced energy supplies.

It would seem that rather than carry on this expensive subsidy program the government would be wise to drop it and allow market forces to take over. It is not as simple as this, however. Part of the problem goes back to the very people who were able to push forward the idea of alcohol as a substitute--the sugar cane growers. Added to this powerful lobby of growers are the owners of the over 400 distilleries that produce the alcohol, the 1.7 million people who are not employed in the industry, and the millions of people who bought alcohol-burning automobiles. These groups argue that because the alcohol program has done so much for Brazil and because imports are still significant, the program is still worth subsidizing. (9:--)

Low oil prices have also slowed Petrobras' exploration efforts. (9:--; 10:--) With the low price, marginal production areas and fruitless expensive searches are hard to justify and even harder to finance.

Finance and the bunglings of a very large bureaucracy may also be part of the recovery problem. One criticism that Brazil typically shoulders from outside

organizations, such as the International Monetary Fund, is the lack of efficiency in the state bureaucracy. Brazilians who work for state-owned companies are among Brazil's fortunate middle class, and they wield considerable political power. This political power makes reduction of the bureaucracy virtually impossible, and the cycle of ineffectiveness continues. The system of state employment is called Estatais. Typically these employees have liberal vacation plans, are treated to cost-free loans, receive yearly bonuses, and a host of other perks. These state-owned corporations are a tremendous drain on the economy requiring massive subsidies from the government each year. (4:65) This deficit spending added to the cost of servicing the world's largest debt of \$105 billion creates a tremendous inflationary pressure that has not been dealt with. The latest plan started well but soon succumbed to the reality of the burdens. (13:14; 7:10)

Politics is also playing a part in the lack of progress. The primary evil is a lack of confidence in the stability of the government by investors. Brazil has only recently returned to democracy. After over 21 years of rule by a military government, Brazilians were finally allowed to elect a president. Unfortunately, this elected president died just days before taking office, and the unelected vice-president, Jose Sarney, was installed as president. President Sarney is a masterful politician but not a

masterful statesman. (20:--) He started his term in office with a plan for economic recovery but it failed. Now potential investors not only see inflation rates that are running over 1000 percent per year but an environment where rules change frequently and restrictions on the activities of foreign companies are expanding almost daily. In 1986 the investment flow was actually negative. (16:39) More companies were selling out and moving than new ones coming in willing to risk the uncertainties. The list of American firms selling out is significant. Monsanto Corporation, for example, sold its \$3 million research facility because of price control regulations and concern of patent protection of the work it accomplished. Upjohn sold its pharmaceutical business, again because of price controls and because its patented drug formulas were being used by local manufacturers without punity. (16:40) Brazil's apparent willingness to consider not paying debts is another negative factor. Many large foreign banks, already over invested in unstable, potentially worthless loans to Third World countries are reluctant to put good money on top of what they privately consider bad money.

But probably more important than any other reason and undoubtedly the most complex is the massive external debt now hanging over Brazil. The relative size of the debt is staggering. Assuming a population of 137 million, the debt of \$105 billion equates to approximately \$765 for every

person in Brazil. This burden might be understandable if the per capita GDP was something more than \$1,645. Undoubtedly something must be done with this debt before any real recovery can take place. (23:52)

Is it possible for a country to go bankrupt? If it were, this might be a potential solution. As in personal or company bankruptcies, however, someone must pay--someone gets hurt from the indiscretion of others.

Will it happen? Judging from current literature there does not seem to be an obvious solution that everyone can agree on. Some advocate reducing the debt burden by write-downs against earnings and reserves and debt sales at market values. (13:14; 7:12) Others are proponents of bridging loans and a wait-and-see policy. (20:--) Still others are trying for debt equity trades. (16:40)

Obviously these questions are beyond the scope and purpose of this paper, but this author believes that until a solution is worked out on the debt by the Brazilian government and Western World business leaders, Brazil will not and cannot join the ranks of developed countries. (7:26)

CHAPTER V

IMPLICATIONS AND RECOMMENDATIONS

From study and research of Brazil's economic problems and her attempts to overcome these problems, a number of implications for United States interests become apparent and warrant discussion. This chapter will argue that the United States should assist Brazil in any way possible to overcome her economic problems. Further it will argue that a significant amount of internal turmoil, both economic and social, will take place in Brazil, and that the United States must exercise extreme restraint not to interfere when reacting to the turmoil.

Friend or Foe

Should the United States and Brazil be friends or foes? The answer is obvious--they should be friends. The reasons, viewed from an United States perspective, are many.

United States national interests broadly outlined are: survival; a growing, healthy economy; support of freedom, democracy, and free trade; a stable world; and healthy relationships with allies. (27:4) Narrowing the focus, this translates into building a strong hemisphere. President Reagan, in a pamphlet outlining United States foreign policy, talks about the problems the United States currently faces in Latin America:

Aggressive Marxist regimes in Cuba and Nicaragua have made the Western Hemisphere, once considered indisputably secure for the United States, an area of strategic opportunity for the Soviet Union. The fragility of social and political arrangements in Latin America and the presence of these two Soviet client states, with their support for guerrilla movements in other Latin nations and their ties to international terrorism, promise continued instability and conflict in the region (27:13-14)

Survival, the first objective--the United States needs to retain its strong secure hemisphere before it can continue to pursue, with vigor, anything else. It is in the United States national interest to keep the Western Hemisphere free of hostile forces. This author contends that this task would be significantly easier if the United States anchored the southern part of the hemisphere with a strong, healthy friend.

Hartmann and Wendzel, in their book, To Preserve the Republic, United States Foreign Policy, make reference to a strategy, dating back before the birth of Christ, that support this contention. The strategy, liberally translated, says that one's neighbor should be one's friend. (28:67)

The United States has achieved significant success and has become dominant in world trade through a policy of building trade partners in the Western World as opposed to building foes. Long term economic health seems to be based on competition and not dominance or monopoly. The United States has learned that competition and free trade are the

pillars of capitalistic strength, and deliberate attempts to build trade partners pay dividends in the long term. One only has to look at Japan and Western Europe to see reinforcing arguments supporting these principles. Thus Brazil, even with the significant potential to become world market direct competitors in a number of areas, should be made a friend and trading partner, not a repressed foe.

An economically strong and friendly Brazil might offer other benefits to the United States. One author speaks of Brazil as having the unrealized potential to be the locomotive that pulls the rest of Latin America out of economic trouble. (6:72) Carrying this thought one step further, it could be contended that should Brazil reach that position of power and strength, she would be very interested in peace and stability in her neighborhood and would be willing to step out diplomatically and possibly even militarily to protect the train. This contention can be given some credibility when Western Europe and the North Atlantic Treaty Organization (NATO) are examined. Western Europe's NATO is an organization dedicated to the task of preventing military domination of the region by outside forces. It's a mechanism for protection and as such is very interested in peace and stability. NATO performs a function that would be unaffordable if taken on by the United States alone.

Brazil's importance as a friend has been touted by a number of authors. But probably the most articulate and often quoted is Ray S. Cline in his book, World Power Trends and U.S. Foreign Policy for the 1980s. In this book, Cline ranks Brazil number three in the world in perceived power behind only the United States and the Soviet Union.

(22:173) Cline's calculations take into account a whole range of factors from mineral wealth to social cohesiveness. Further, in his chapter espousing an "All-Oceans Alliance," he lists Brazil as a critical component and leader of an alliance in the South Atlantic that could keep that ocean open to free trade. (22:197) Brazil is, without a doubt, an ideal candidate for friendship or alliance, but she needs economic help.

Economic Help

Brazil's overall biggest problem as a nation is an economic one. As shown earlier in this paper, the major economic problem is how to deal with the enormous debt built up as a result of energy imports. Brazil has largely solved the energy problem but the debt problem remains. No easy solutions are advocated or implied. However, what is being advocated is a concerted effort by business and government to come up with some solutions.

It is this author's opinion that the solution will eventually involve: dismantling the Brazilian bureaucracy that drags down the economy through mismanagement; allowing

domestic consumption to free-wheel for a number of years to build up a sound domestic market (with the added benefit of reducing social pressures); and finally some external aid at the beginning to help build the economic machinery. This external aid should not be tied to existing debt or International Monetary Fund dictums that have a way of becoming counterproductive. Further, bankers, not bureaucrats need to take the lead in helping resolve the problem. It was the bankers by-in-large who lent money without ensuring security or collateral and who should be made to work solutions. (7:12)

Lessons of the superior workings of bureaucracy-free economies abound, even in Brazil. In Manaus, a boom town on the Amazon, a number of companies have proved that if allowed to operate freely they can make money in spite of a number of obstacles including distance from markets. (17:102)

Brazilians are starting to advocate privation too. (15:34) The most recent finance minister resigned after his plan to tax the rich and dismantle portions of the bureaucracy were turned down by President Sarney. The idea was rejected this time, but it undoubtedly will come around again.

To reiterate, however, no easy solutions are apparent. The problem is deep-seated, multi-faceted and has befuddled more than a few economists and planners. But a

solution surely exists and finding it must be pursued with vigor.

Trade Issues

There are a couple of cautions and a number of suggestions regarding trade that need airing. Foremost on the list of cautions is the author's opinion that the United States must be careful that security policy is not dictated by narrow business interests. On one hand Brazil is crying for access to advanced technology, and on the other hand she is restricting imports of computer components and software. (18:--) This dichotomy cannot go on and Brazil will eventually come to realize it. In the meantime, United States firms denied access to Brazilian markets have, with State Department support, almost started a fruitless trade war. This trade war, if started, could ultimately lead to deep-seated ill feelings that can only serve as stumbling blocks to good relations.

The Brazilian position can be stated fairly simply. They believe, as President Sarney said in a speech at the United Nations, that Brazil is ". . . caught between the threat of protectionism and the specter of insolvency." (3:23) They also believe that when the United States looks at trade issues they don't treat Brazil with any favor. Citing Israel and Pakistan as examples when considering the nuclear nonproliferation issue as it relates to trade and aid, Brazil alleges that the United States' policy is

slanted and biased. (2:116) They also cite the United States' apparent lack of fortitude concerning the protective tariffs built by Japan during her postwar recovery period. These tariffs were critical components in Japan's recovery, and Brazil believes her existing tariffs are critical to survival and should be excused.

Another caution: The United States should not attempt to deny the law of supply and demand in world trade of military equipment. Brazil is very involved in this market. She has built an elaborate system of sales and barter arrangements that require no commitment and are particularly appealing to Third World customers. Left unsaid is discussion of Brazil's hard-earned reputation for producing quality equipment. She will not easily let go of this market niche, nor should she be encouraged to do so. (8:178) In a number of cases the equipment she sells is in direct competition with Soviet or Soviet surrogate-produced equipment. Buying from Brazil creates no ideology binds and allows for barter opportunities among Third World countries.

Trade with the Soviets appears to be another potential problem. This author believes that this trade is not a problem and on the contrary a good thing for Brazil. Brazil should be allowed to benefit as much as she can from trade with the Soviets and not interfered with by United States' concerns. The primary concern should be the things that Soviet inroads tend to bring, namely infiltration of

the society and planting seeds of unrest. Knowledge of the Soviet pattern of exploiting opportunities seems to be making the rounds in Third World countries, so hopefully the Brazilians are keeping up their guard.

Summarizing these points--Brazil needs free reign in trade matters, and United States' policy should be supportive, not based strictly on narrow interests of certain United States exporters.

Powerhouse or Powderkeg

When one looks at Brazil with her vast natural resources, hard working people and geostrategic position, it is very easy to see her potential greatness as a country. But this potential greatness is in reality handicapped by a number of economic related problems that must be dealt with before the potential can be realized. Primary among these problems is the gap between the "haves" and "have-nots." This gap is not simply income or money, though this does definitely exist; but it is education, housing, food--opportunity. The statistics are glaring and only a few will illustrate the point. For example: 10 percent of the population account for 50 percent of the personal income earned (6:73); land wars took over 300 lives in 1986 (6:77); half the population exist on less than 2400 calories per day (6:73); and finally, favelas (the slum cities that spring up outside major Brazilian cities) house millions of people. Brazil is not a land of milk and honey or unlimited

opportunity for all citizens. This social disparity is a very significant breeding ground for discontent and political unrest.

Politics must also be considered when expectations are measured. It appears that the people are becoming dissatisfied with the current political arrangement and are quietly, so far, demanding change. (15:34)

Some observers believe that Brazil is locked into a cycle of political turmoil that is impossible to break. Political scientist Helio Jaguaribe, an adviser to President Sarney, calls this a vicious cycle and blames it on rising expectations and economic demand brought on by periods of democracy. He claims: "Those demands produce panic in the middle classes, who see their perks--their apartment, their Volkswagen--being threatened, and end up calling on the military to intervene to stave off communism." (11:21)

Today the political leader with apparently the most popular support is Leonel Brizola, the past governor of the state of Rio de Janeiro. Brizola is the brother-in-law of Joao Goulart, the man that the military disposed from power in a 1964 coup. (13:14) Brizola is also known for his nationalistic ideas and a socialistic slant--his politics branded "sun-tanned socialism." (4:87) The military is not too impressed, and many believe that should Brizola come to power the military might step back in at the first sign of

trouble. Others say the military never really relinquished power. (12:41)

Military in Control

There is evidence to support the contention that the military still has a keen and sometimes decisive role in internal politics. Military men, for example, run the intelligence agency and the National Security Council. (12:41)

The military in Brazil has a long history of professionalism in spite of their record of strong arm tactics in dealing with opponents. One reason for this is their system for continuing professional military education. Their senior school, Escola Superior da Guerra, has an excellent reputation for rigorous study of domestic as well as military technical problems. (1:338)

Periods of military rule have been successful in other areas of measure. Most recently the period of rapid economic growth and periods of only double-digit inflation were achieved under military leadership. This professionalism has not been forgotten by the people. Recently a movie theater audience broke into spontaneous, wild applause when the name of a former military dictator was mentioned in a film. The Brazilian Congress also has a firm understanding of the role of the military in Brazil's quest for a fully functioning democracy. When writing a new constitution recently, they rejected hands down all

proposals that would limit the military to external defense roles. (12:41)

Aggression and unfounded military build-ups typically come to mind when a military dictatorship is discussed. Neither of these were a problem with the last military group in power. Spending for the military in fact was lower while they were in power than it is currently. Even now military related expenditures run less than one percent of GNP. Aggression has not been a problem either. Although a number of borders are in dispute, Brazil has not reacted militarily in a number of years. Regardless of who is in power, it seems to be Brazil's style to attempt to work out problems diplomatically. (1:334, 338)

Diplomacy Not Intervention

The implications just discussed briefly touch on a number of dilemmas United States policy makers are likely to face in relation tailoring with Brazil. With these in mind, the author proposes a series of recommendations for those United States policy makers.

First, do not follow the temptation to intervene in Brazilian politics. The situation is a very difficult one to sort out and intervention would be an insult to Brazil's citizens and leadership. The country may very well return to military rule in the near future. If this does occur the United States should not sound a condescending alarm based on human rights concerns or what is perceived as the demise

of democracy in that country. With the tremendous social pressures present, the only other alternative to military rule might well turn into a system even more incompatible with United States national security interests. The alternative might also bring tremendous pain and suffering to Brazilians much like that being currently suffered by the people of Iran. This author contends that there is not an expert in the United States government that is better equipped to deal with Brazilian problems than Brazilians are. Leave them alone--let them solve their political problems their way.

Second, the United States should endeavor to improve diplomatic relations with Brazil in a variety of ways. This includes picking up the pace of cultural and educational exchange programs as well as increasing military cooperation. Military cooperation might be the most fertile area to work in initially. Brazilians are hungry for technology and could benefit greatly from United States expertise. Increased exchange of students at professional military schools might also be appropriate with the benefits mutual. Brazil's military has long studied low-intensity and counter revolutionary warfare--something about which the United States military can always learn more.

Finally, the United States must not expect overnight miracles in Brazil's economic recovery efforts. There will be economic problems that create diplomatic and trade difficulties for years to come. Once Brazil is out of

economic trouble and firmly established as a strong friend would be the time to start discussing truly fair and unencumbered trade and competition between the two countries. Before then Brazil should be afforded patience and understanding.

With this advice for United States policy makers come some for Brazilian leaders. The overriding concern for Brazilian leaders should be how to improve knowledge about Brazil in the United States. Congressional lobbies, ad campaigns advertising Brazil's potential, and the encouraging of cultural exchanges of all descriptions would go a long way toward building knowledge and support for Brazil's policies. When Brazil's economic problems are explained and understood in the context of trade, the American people would be much more understanding of Brazil's independent, go it alone mentality. Things like trade with sworn enemies of the United States, such as Libya, should be explained more clearly. Even Brazil's nuclear policy might be appreciated by people of the United States if explained in energy dependence terms. In short, Brazil should court friendship with the United States and do her best to downplay those things that are known irritants and stumbling blocks to good relations.

CHAPTER VI

CONCLUSIONS

The underdevelopment of Brazilian domestic energy sources created economic problems when cheap imported energy was no longer available. Heavy borrowing in world money markets to pay for expensive imported energy compounded the economic problem. Aggressive development of domestic energy supplies combined with successful efforts to expand barter and trade with energy exporting countries should have corrected the economic problem--it did not. The money borrowed to pay for energy imports built up a massive foreign debt that is very difficult to service in spite of Brazil's favorable import-export position. The burden of servicing the debt takes away potential investment capital, and the size of the debt frightens away potential foreign investors.

The economic problems are also creating additional social pressures on Brazil's budding democracy. Abundant natural resources, economic growth and gradually improving living conditions, once gave Brazilians reason to be patient. With the rapidly dimming horizons, staggering inflation and lack of direction from political leaders, patience is wearing thin.

Brazilian problems should be a concern of the United States. Solutions are not apparent and will be difficult to

formulate. However, they must be sought with increased vigor. Current United States interest apparently centers around partial fixes to the debt problem. These partial fixes may help but do not give the appearance of concerted effort. Additionally, the tit-for-tat bouts with Brazil over protection of narrow United States business interests cloud the need for concern over long term Western Hemisphere security needs. If the United States can help Brazil out of her current economic problems and work toward building a strong economic and cultural partnership, Western Hemisphere security would be much easier to maintain.

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